

e^+He^3 Full Simulations

Alex Jentsch

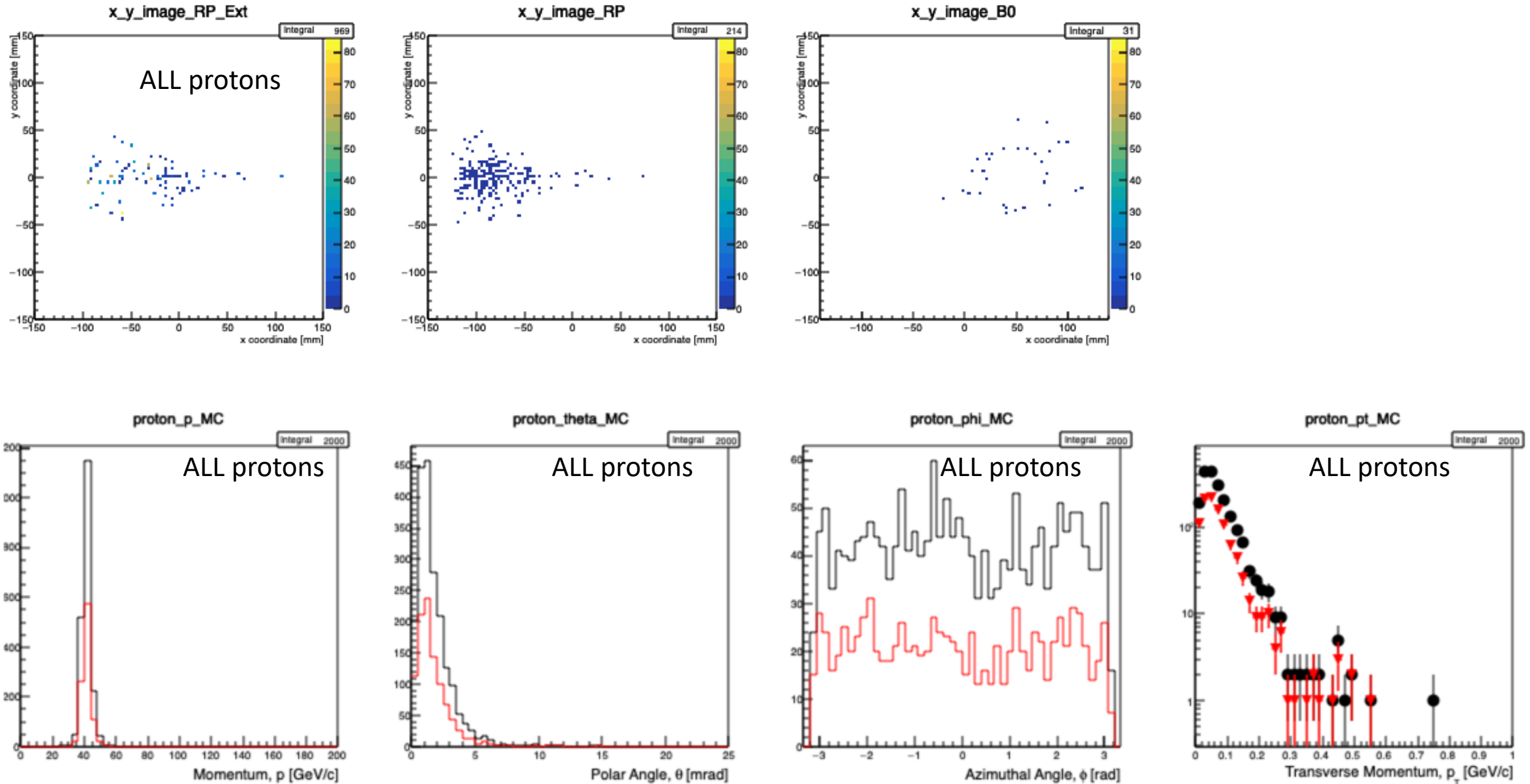
9/10/2020

Preliminaries

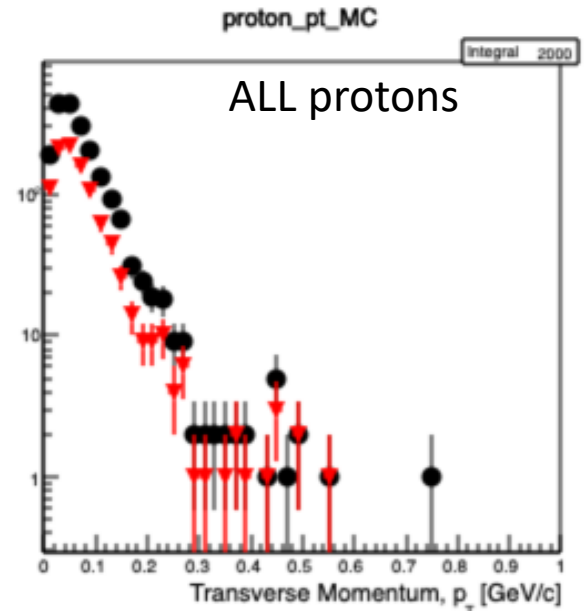
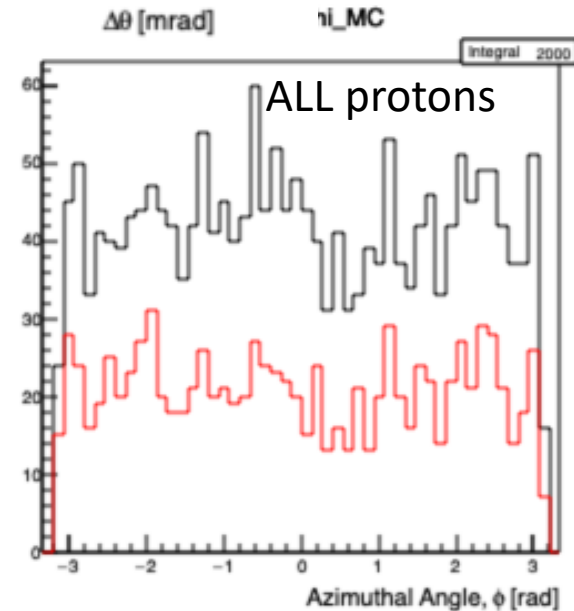
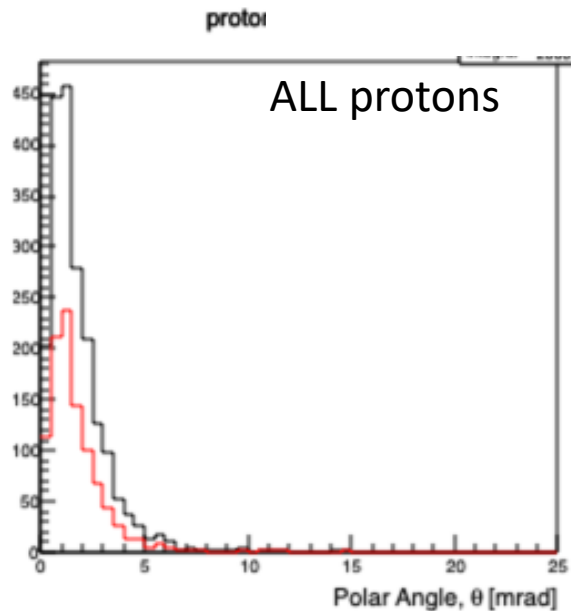
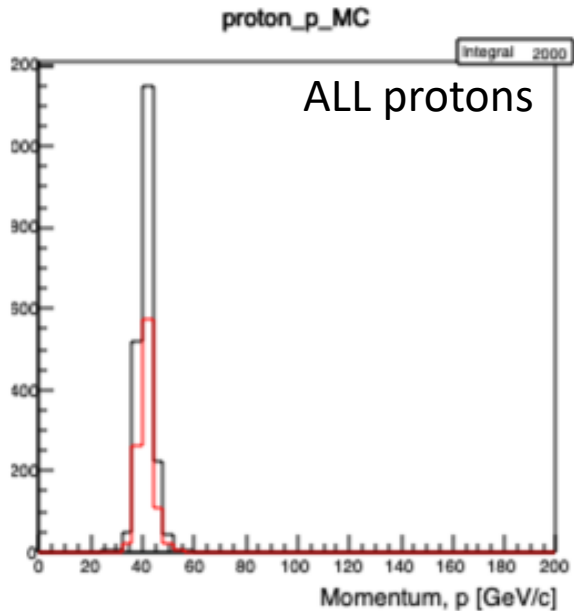
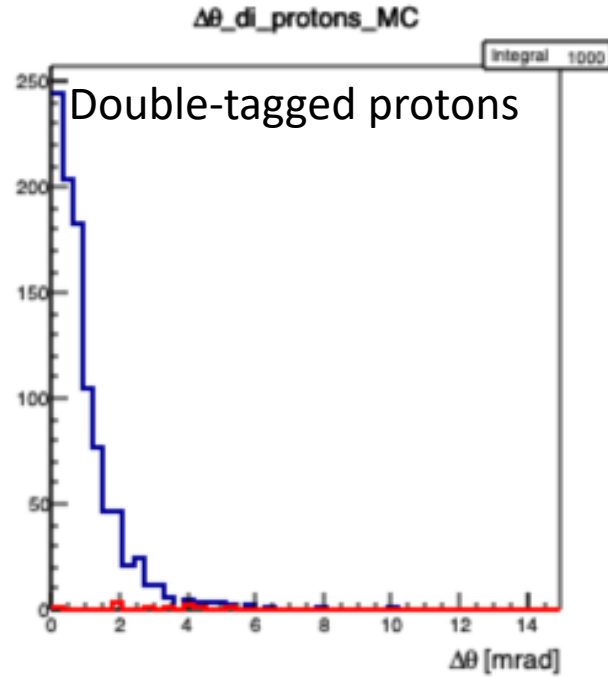
- Some updates since last time's presentation (8/27/2020).
 - Now correctly capturing the spectators 100% of the time.
 - This is different in Mark's files vs. Ivica's, so I had to do this carefully, and fix a technical issue in EicRoot/eic-smear. Hence the delay.
 - Can discuss this, if desired.
- No special event cuts. Just looking at the spectators in each event in the record.
- All detectors included.
- Small event samples for now (1k events) just to see what we get.
- Not showing neutrons here since their acceptance is simple and doesn't depend on the magnetic fields, etc.
- Showing fewer plots this time to only look at the most-important things.

BeAGLE 5x41 GeV/n DIS

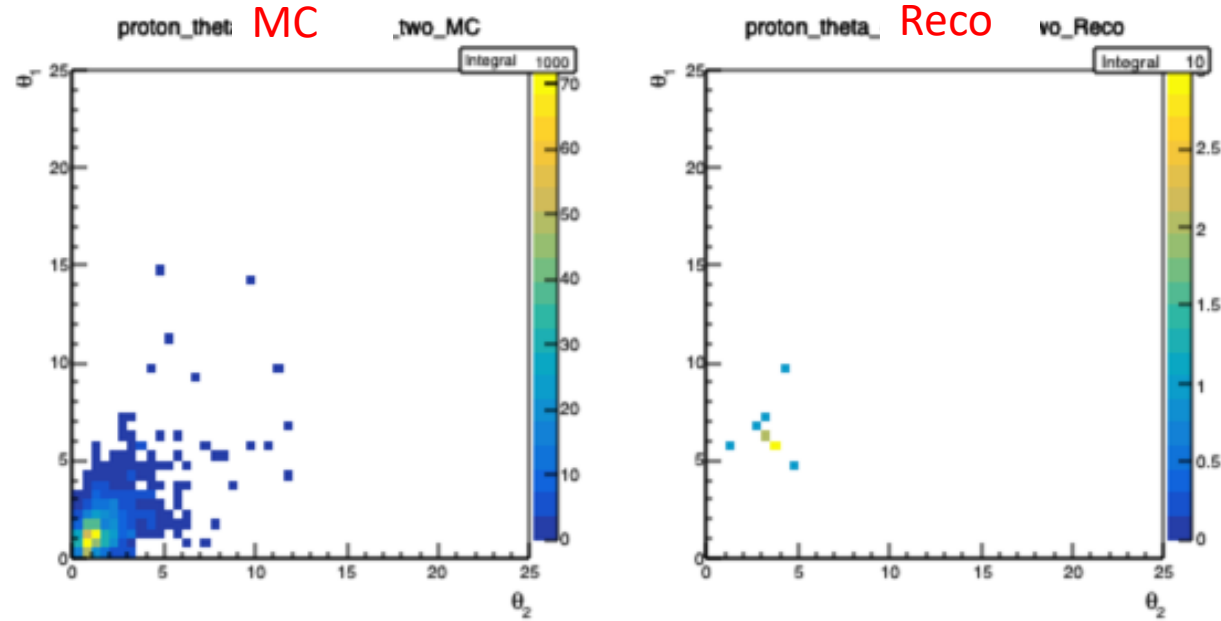
BeAGLE 5x41 results – spectator protons – DIS



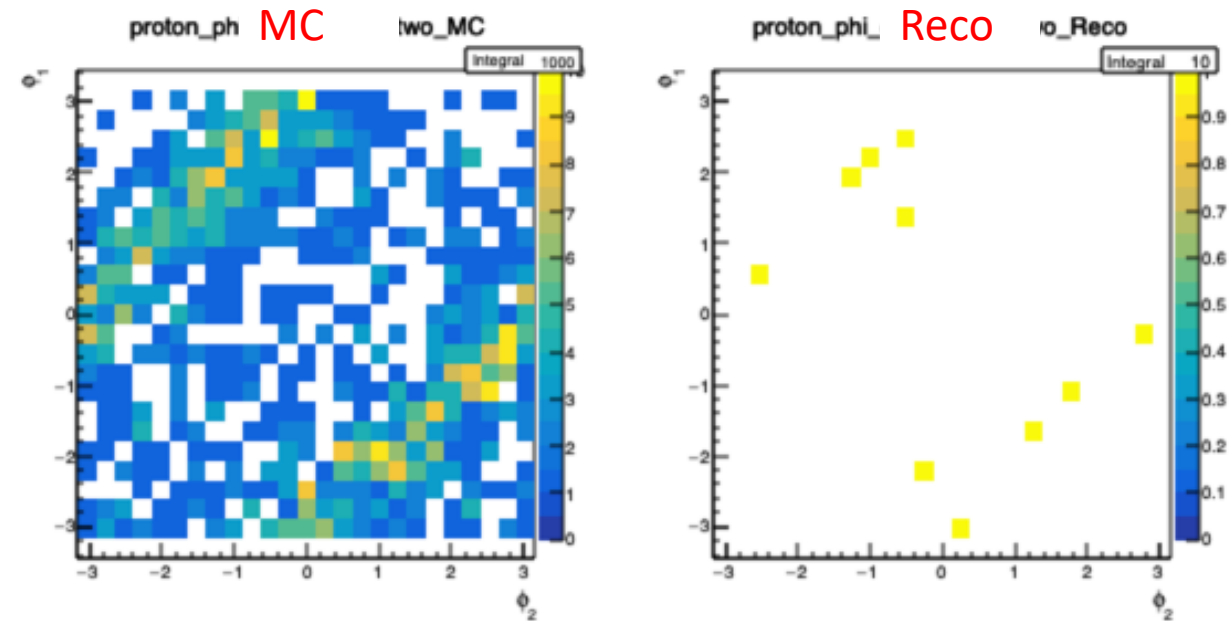
BeAGLE 5x41 results – spectator protons – DIS



BeAGLE 5x41 results – spectator protons – DIS



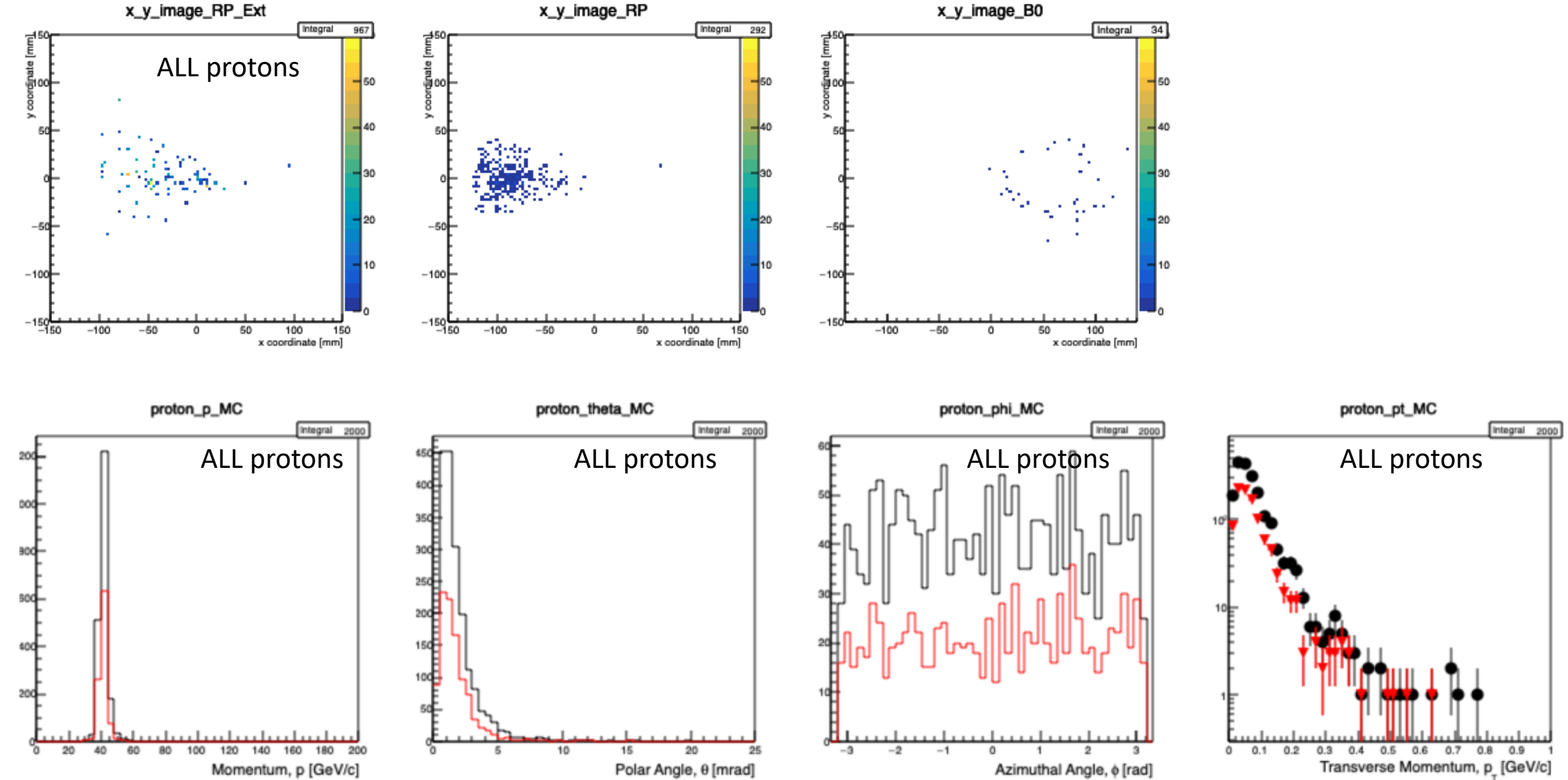
Theta of particle 1 vs. Theta of particle 2



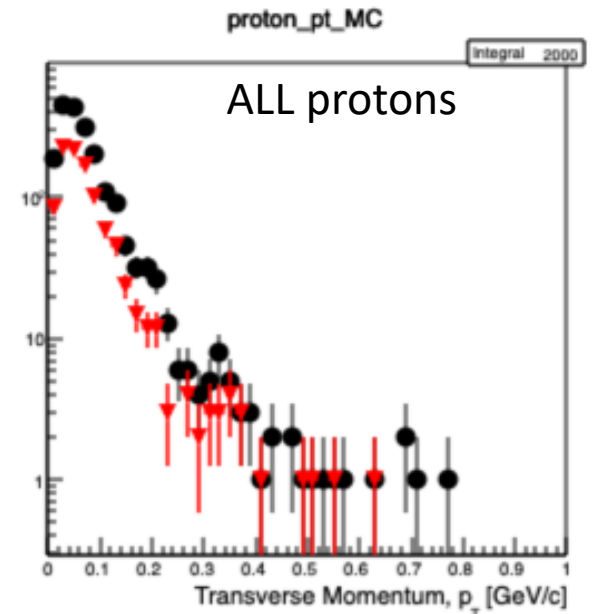
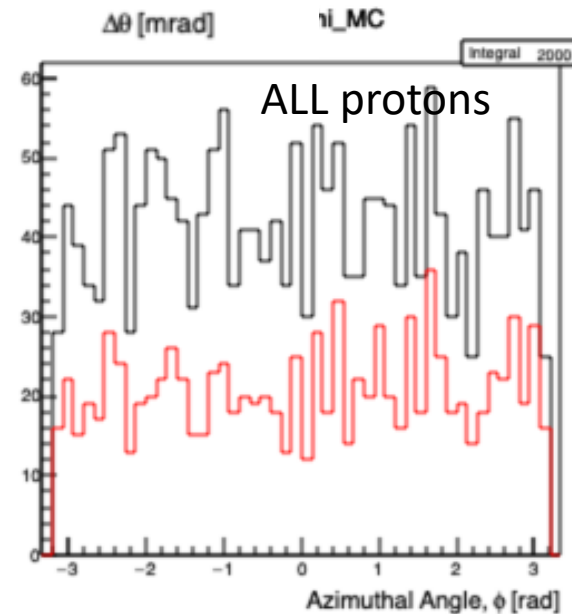
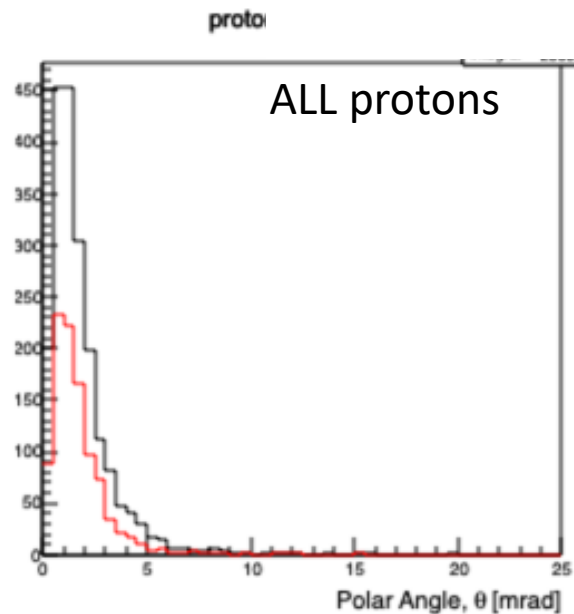
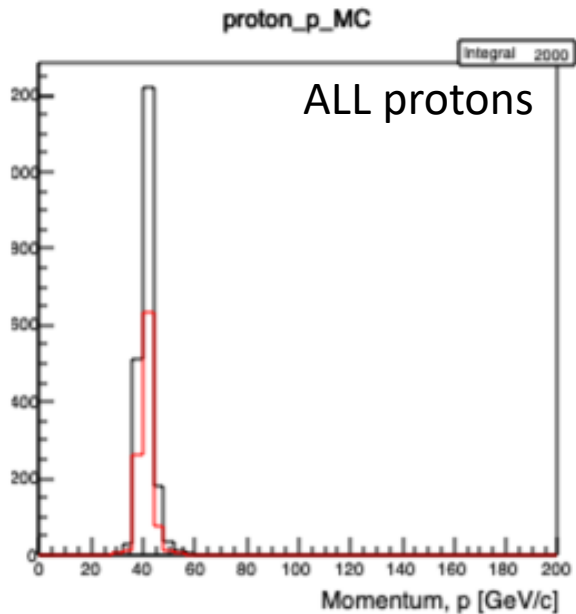
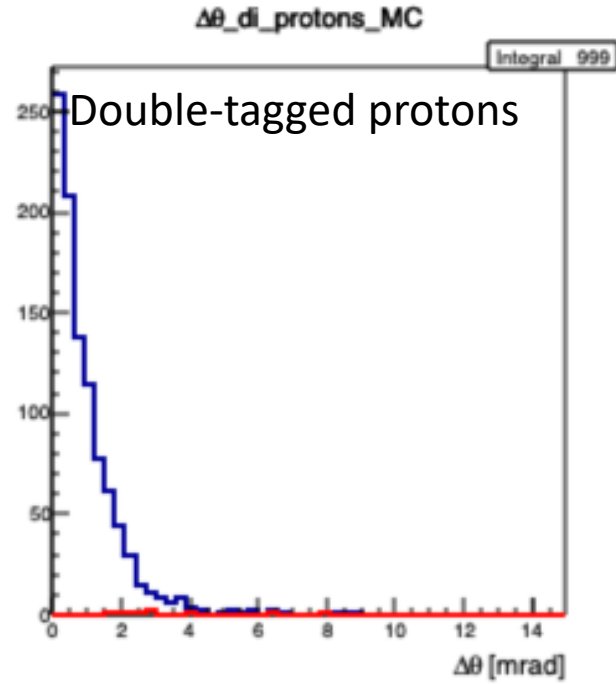
Phi of particle 1 vs. Phi of particle 2

BeAGLE 5x41 GeV/n J/Psi

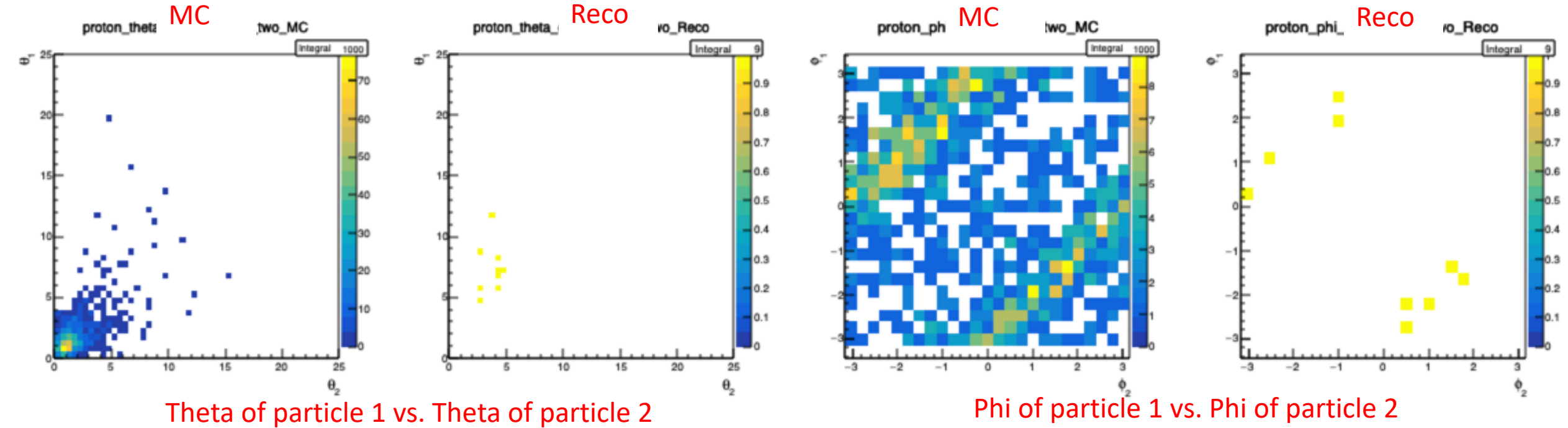
BeAGLE 5x41 results – spectator protons – J/Psi



BeAGLE 5x41 results – spectator protons – J/Psi

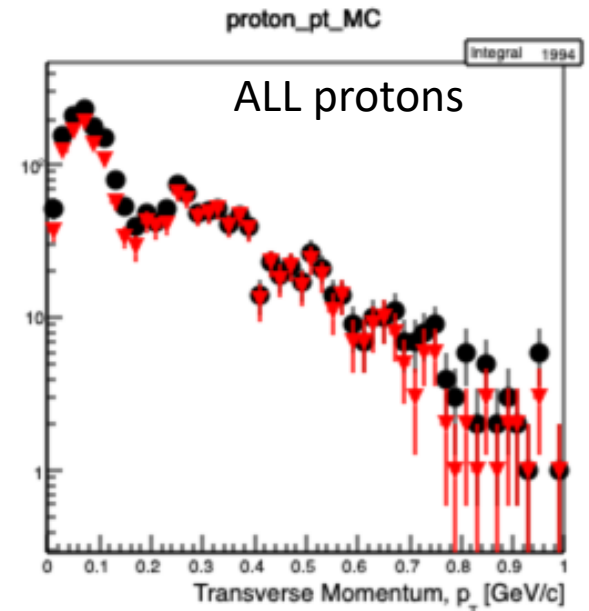
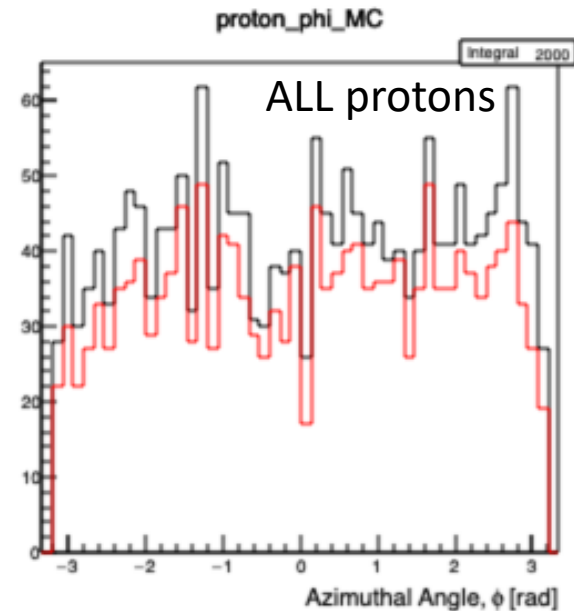
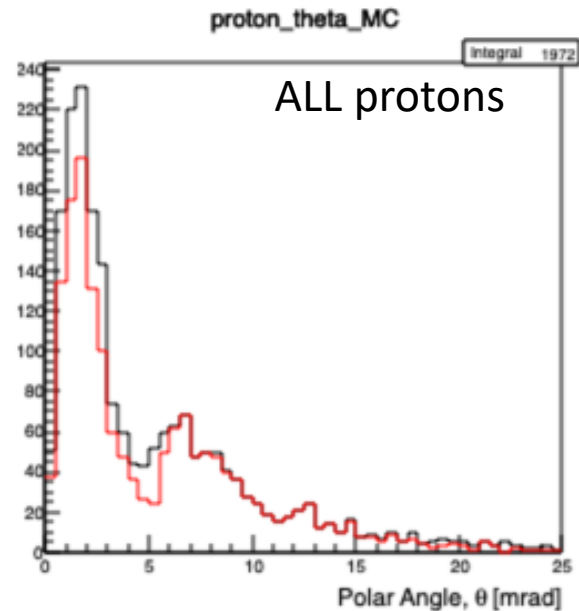
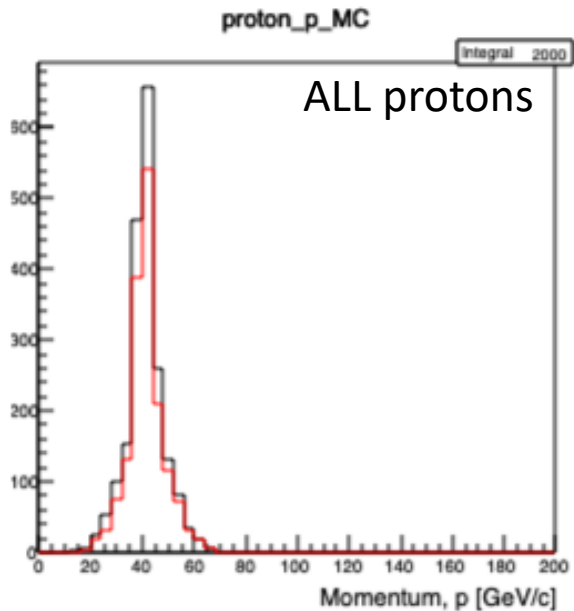
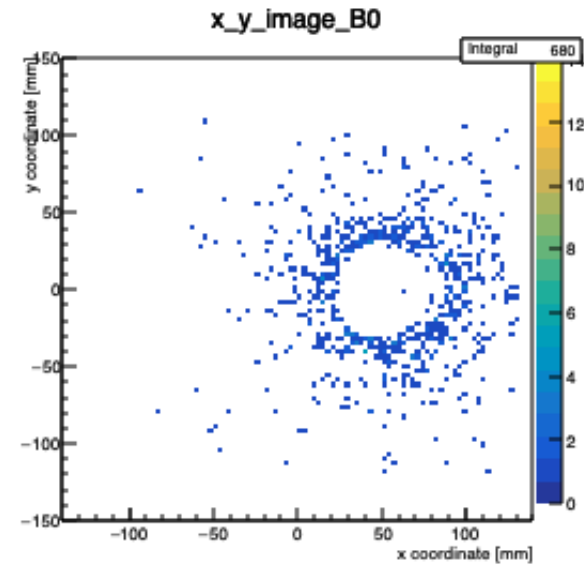
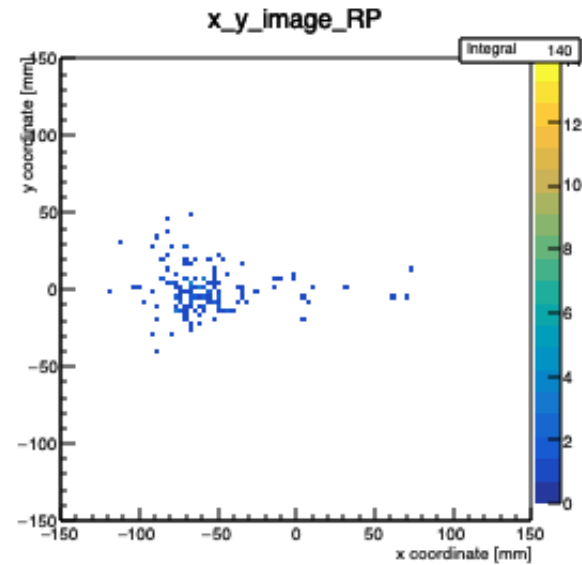
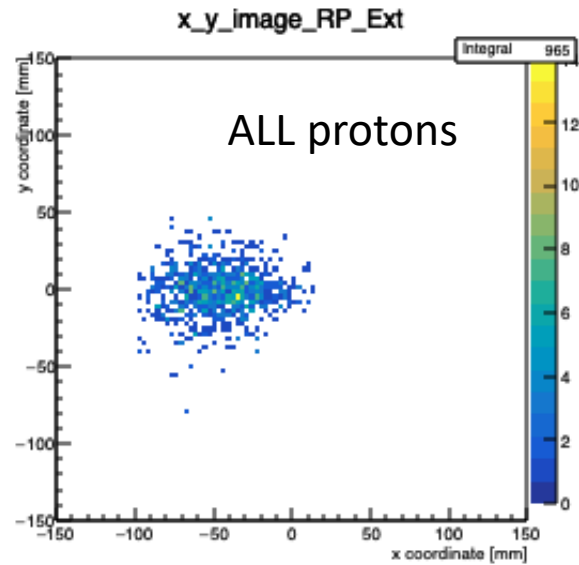


BeAGLE 5x41 results – spectator protons – J/Psi



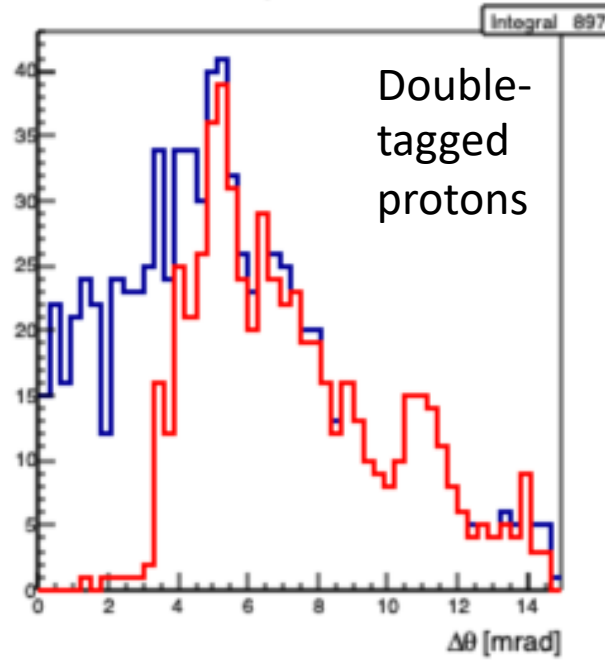
Ivica 5x41 GeV/n SRC

Ivica 5x41 results – spectator protons – SRC



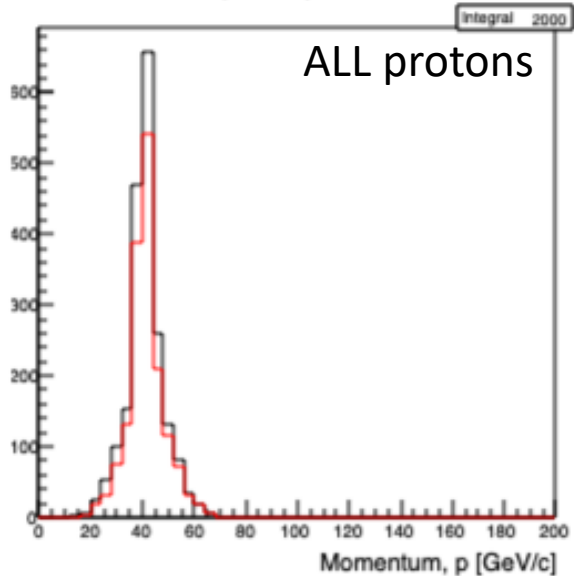
Ivica 5x41 results – spectator protons – SRC

$\Delta\theta_{di_protons_MC}$



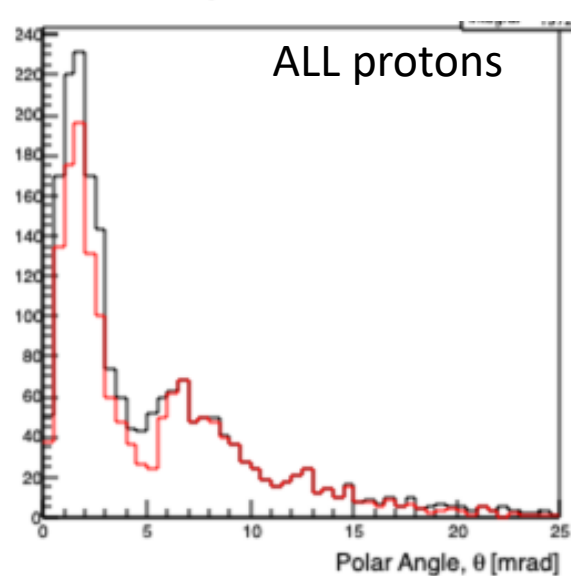
proton_p_MC

ALL protons



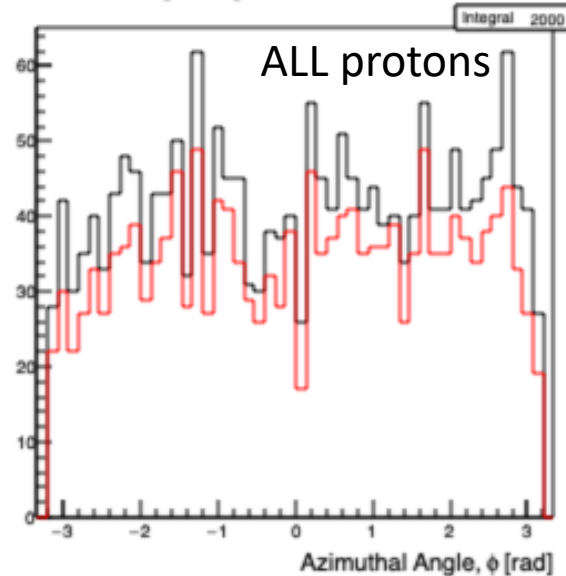
proton_

ALL protons



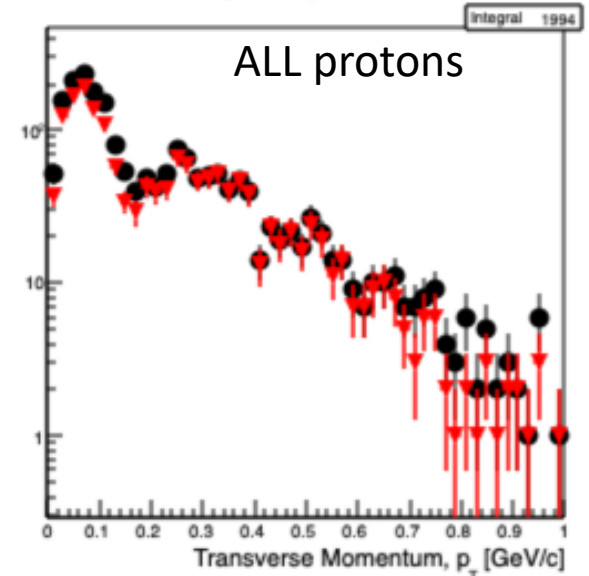
MC

ALL protons

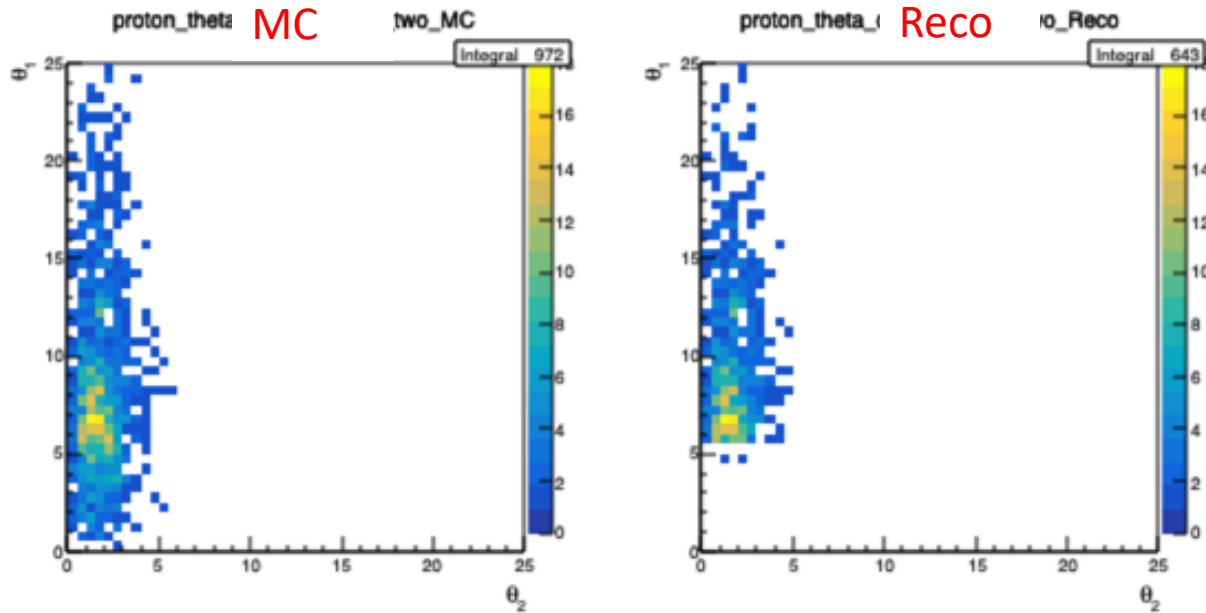


proton_pt_MC

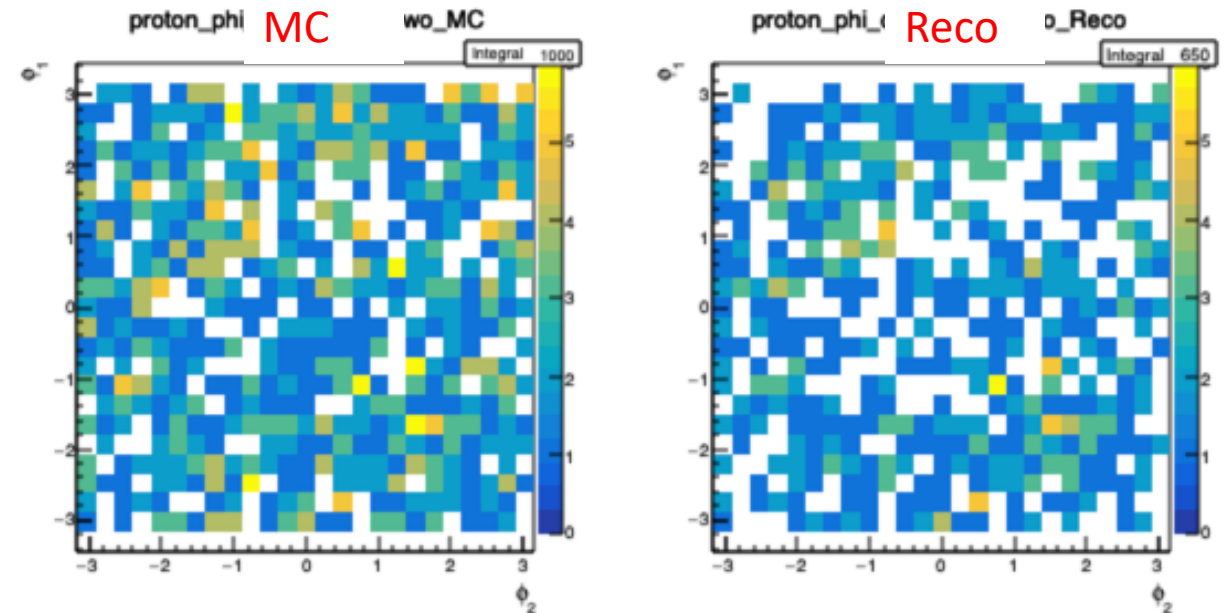
ALL protons



Ivica 5x41 results – spectator protons – SRC



Theta of particle 1 vs. Theta of particle 2



Phi of particle 1 vs. Phi of particle 2

Conclusions

- Spectators now correctly identified.
- Basic conclusions still seem intact.
- The final details about the layout of the beam pipe, off-momentum detectors, and RP will greatly affect the di-proton acceptance.